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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,313	02/09/2001	Sujoy D. Guha	6130 PA01	6705

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EXAMINER

SONG, HOON K

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 02/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/780,313

Applicant(s)

GUHA ET AL.

Examiner

Hoon K Song

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-9 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-8, drawn to web inspection system having a plurality of smart cameras, classified in class 250, subclass 559.46.
- II. Claim 9, drawn to circuit of generating prioritized image data, classified in class 250, subclass 559.45.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the method of generating prioritized image data does not required the inspection system having the plurality of smart cameras. The subcombination has separate utility such as flaw detecting circuit using ohter kind of optical detecting system.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Roberts et al. (US 5440648).

Regarding claim 1, Roberts teaches a system for web inspection of a web, the system comprising:

a plurality of smart cameras (30), each smart camera for detecting a plurality of web flaws from a streaming video signal, each smart camera having means for generating flaw image data and flaw location data (column 4 line 11+);

a host computer (46) for controlling the low contrast web inspection system and for accepting and displaying the flaw image data and the flaw location data; and

an Ethernet (52) for connecting the plurality of smart cameras to the host computer.

Regarding claim 2, Roberts teaches that the each smart camera of the plurality of smart cameras comprises:

a line scan camera for generating a pixel representation of a portion of the web
(column 4 line 11+);

a lighting uniformity and pixel sensitivity correction means for correcting each
pixel of the pixel representation and for providing a corrected pixel representation
(column 5 line 60+);

a web edge detector for detecting at least one edge of the web (column 14 line
26+);

a multi-pipeline pre-processor (12) for filtering the corrected pixel representation,
the multi-pipeline preprocessor generating a prioritized data stream of potential flaws
(column 6 line 30+);

a run length encoder (44) for generating location data regarding a location of
each group of the potential flaws in a cross direction;

a blob detector (66) for generating block data regarding the location of blocks of
the potential flaws along a machine direction; and

an inspect/reject analyzer (16) for determining actual flaw data from the
prioritized data stream of potential flaws.

Regarding claim 3, Roberts teaches that the multi-pipeline processor comprises:

a plurality of filters for averaging the corrected pixel representation over a
distance of the web along a machine direction of the web (column 8 line 19+);

a plurality of adaptive background subtraction channels connected to the plurality
of filters (column 5 line 58+);

a plurality of thresholders, each thresholder of the plurality of thresholders connected to an output of an adaptive background subtraction channel of the plurality of adaptive background subtraction channels, each thresholder for grouping a subtracted pixel representations (column 5 line 58+); and

a priority logic circuit (70) for prioritizing the outputs (34) of each of the plurality of thresholders.

Regarding claim 4, Roberts teaches that the plurality of filters comprises:

A background filter;

A machine direction streak filter;

A cross direction streak filter and

A small flaw filter (column 5 line 58+).

Regarding claim 5, Roberts teaches that the plurality of thresholders comprises:

A single pixel flaw detector;

A uniformity detector;

A machine direction streak detector and

A small flaw detector (column 5 line 58+).

Regarding claim 6, Roberts teaches that each smart camera of the plurality of smart cameras detects the plurality of web flaws from the streaming video signal at a contrast approaching a signal noise level (column 8 line 19+).

Regarding claim 7, Roberts teaches a method for low contrast web inspection of a web, the method comprising the steps of:

providing at least on smart camera (30) for inspecting at least a portion of the

web;

- generating flaw image data and flaw location data (column 4 line 11+);
- transmitting the flaw image data and flaw location data over an Ethernet (52);
- displaying (50) the flaw image data and flaw location data.

Regarding claim 8, Roberts teaches that the step of generating flaw image data and flaw location data comprises the steps of:

- generating a pixel representation of a portion of the web;
- correcting the pixel representation for a lighting uniformity and a pixel sensitivity;
- filtering the corrected pixel representation utilizing a plurality of filters (column 8 line 25+);

- grouping the filtered corrected pixel representations to generate a plurality of potential flaw data streams (figure 2);

- generating a prioritized data stream from the plurality of potential flaw data streams (figure 2);

- generating cross direction location data (44) regarding a location of the prioritized data stream;

- generating block data (66) regarding the location of blocks of the prioritized data stream along a machine direction; and

- determining actual flaw data (130) from the prioritized data stream of potential flaws utilizing the cross direction location data and the block data.

Regarding claim 9, Roberts teaches a method for generating a prioritized image data stream from a digitized video stream of a web, the method comprising the steps:

averaging the digitized video stream over a distance of the web to generate an averaged background signal (column 5 line 60+, column 8 line 25+);

averaging the digitized video stream over a distance of the web along a machine direction of the web to generate a filtered machine direction signal (column 8 line 25+);

averaging the digitized video stream over a distance of the web along a cross direction of the web to generate a filtered cross direction signal (column 8 line 25+);

subtracting the averaged background signal from the filtered machine direction signal to generate a first pixel representation (figure 4 and column 8 line 25+);

subtracting the averaged background signal from the filtered cross direction signal to generate a second pixel representation (figure 4 and column 8 line 25+);

grouping the first and second pixel representations to generate at least two data streams of potential flaws (figure 4, 120 and column 8 line 25+); and

prioritizing the at least two data streams of potential flaws to generate the prioritized image data stream (70).

Response to Arguments

Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon K Song whose telephone number is 703-308-2736. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-4858 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hoon K. Song
February 5, 2003


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